

REMARKS

Upon entry of the present Reply, claims 1-6, 8-13, 15-21 and 23 are pending in the application. Claims 1, 10, 16 and 21 are amended, claim 22 is cancelled, and new claim 23 is submitted herein. Support for the amendment of claims 1, 10, 16 and 21 is found, for example, in cancelled claim 22. Support for new claim 23 is found, for example, in original claims 16 and 21 and in cancelled claim 22.

Applicants note with appreciation the withdrawal of the previously asserted rejections of Applicants' claims.

Applicants respectfully submit that the newly cited references and combinations fail to disclose all of the limitations of Applicants' claims and thereby said claims are respectfully submitted to fully patentably to distinguish over the asserted combinations of prior art references.

For at least the reasons which follow, Applicants respectfully request reconsideration of the application, withdrawal of the asserted objections and rejections, and allowance of the claims.

Rejection under 35 U.S.C. §103 over Switkes et al., Wallace and Constantini.

Claims 1-22 stand rejected as obvious over the asserted combination of Switkes et al. ("Immersion Lithography at 157 nm"), Wallace, U.S. Patent No. 6,024,801 and Constantini et al., U.S. Patent No. 6,612,317. Applicants respectfully traverse the rejection of the claims for the following reasons.

Independent claims 1, 10 and 16, and therefore all of the claims depending on these claims, and claim 21, have been amended to incorporate the subject matter of claim 22. New claim 23 incorporates this subject matter and further specifies that the immersion lithography medium recovered from the mixture and purified exhibits substantially the same purity as the original immersion lithography medium applied to the surface of the semiconductor wafer, and that the process further comprises recycling the recovered and purified immersion lithography medium for use in immersion lithography. For the following reasons, Applicants respectfully submit that all of the claims are in condition for allowance,

since the combined references applied against the presently pending claims fail to disclose or suggest all of the limitations of Applicants' claims.

Specifically, although Switkes et al. and Wallace and Constantini disclose some of the features of the presently claimed invention, these references fail to disclose or suggest all of the claimed features as recited in Applicants' claims. Specifically, Constantini fails to disclose recovering and purifying, and/or recovering, purifying and recycling for reuse in immersion lithography, the immersion lithography fluid.

Constantini discloses use and recovery of a co-solvent, not of an immersion lithography fluid. There is no disclosure in Constantini teaching or suggesting the use of an immersion lithography fluid, and therefore there cannot be any teaching or suggestion that such a fluid could be recovered and recycled. Constantini discloses supercritical phase cleaning and processing of semiconductor wafers as for removal of solvents, photo-resist materials, and loose particulate matter. Col. 1, lines 13-15. But, Constantini does not disclose recovery of anything but the co-solvent. Constantini teaches discarding the other materials. Col. 10, lines 22-37.

Constantini discloses, at col. 5, lines 15-40, that the co-solvent, with or without an additional surfactant, is provided to the system together with the super critical fluid ("SCF"). As disclosed at col. 6, lines 40-56, the co-solvent is separated and purified for re-use. The fact that the co-solvent and surfactant (if any) are added with the SCF indicates that these are part of the removal and cleaning materials, not of the material to be removed from the semiconductor surface. There is no disclosure that the co-solvent is any material such as an immersion lithography fluid. There would be no reason to use such a material for this purpose. There is no specific teaching in Constantini of the identity of the co-solvent, so it must be defined as would be understood by a person of skill in the art of supercritical fluids, e.g., as a solvent such as a traditional organic solvent. See, e.g., U.S. Patent No. 6,562,146, col. 5, lines 51-60, listing a variety of traditional organic solvents that can be used as co-solvent in a SCF cleaning process. Certainly there is no suggestion in Constantini et al. to employ an immersion lithography fluid as a co-solvent.

Accordingly, Applicants respectfully request the Examiner to withdraw the rejections of Applicants' presently pending claims over Switkes et al., Wallace and Costantini et al.

Applicants respectfully submit that all of the presently pending claims patentably distinguish over the cited references. Applicants respectfully request the Examiner to withdraw the rejection of the claims.

CONCLUSION

For the foregoing reasons, Applicants respectfully submit that all of the presently pending claims patentably distinguish over the prior art generally, and over Switkes et al., Wallace and Costantini et al., and that all of Applicants' claims are therefore in condition for allowance. Applicants request the Examiner to so indicate.

If the Examiner considers that a telephone interview would be helpful to facilitate favorable prosecution of this application, the Examiner is invited to telephone the undersigned.

If any additional fees are required for the filing of this paper, please charge the fee to Deposit Account No. 18-0988, Order No. H1559 (AMDSPH1559).

Respectfully submitted,
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